

4291 Add'l. Work

Diag. Ch. No. 904-2

Form 504	
DEPARTMENT OF COMMERCE	
U. S. COAST AND GEODETIC SURVEY	
_____, Director	
State: Porto Rico	
DESRIPTIVE REPORT	
Topographic Hydrographic	Sheet No. 4291 Add'l. W'k.
LOCALITY	
Vieques Sound	
Central Vieques Sound	
1926	
CHIEF OF PARTY	
G.C. Mattison	

GOVERNMENT PRINTING OFFICE

4291 Add'l. W'k.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

WIRE DRAG

The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

Field No. _____

REGISTER NO. 4291 Add'l. Wk.

State PORTO RICO

General locality VIEQUES SOUND

Locality Arenas Pt to Grampus Shoals
~~CENTRAL VIEQUES SOUND~~

Scale 1:40,000 Date of survey Mar. 3 - July 15, 19 26

Vessel RANGER

Chief of Party G. C. MATTISON

Surveyed by H. E. Finnegan

Protracted by H. E. F.

Soundings penciled by H. E. F.

Soundings in ~~fathoms~~ feet

Plane of reference M.T.L. - 0.5 feet = M.L.W.

Subdivision of wire dragged areas by H. E. F.

Inked by H. E. F.

Verified by _____

Instructions dated May 28, 19 25

Remarks: _____

4291 Add'l. Wk.

DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY.
E. LESTER JONES, DIRECTOR.

PORTO RICO

A DESCRIPTIVE REPORT
to accompany
WIRE DRAG SHEET #4291

1926

S.S. RANGER

G.C. MATTISON,
CHIEF OF PARTY.

DESCRIPTIVE REPORT

to accompany

WIRE DRAG SHEET # 4291.

INSTRUCTIONS:

The instructions of the Director dated May 28, 1925, called for additional work on Wire Drag sheet #4291; redragging certain areas deeper; finding the least depth on charted shoals and covering splits and insufficient overlaps.

LIMITS:

The detached areas to be dragged were in Vieques Sound between Culebra Island, Barriles and Hermanos Reefs on the north and Vieques Island on the south.

SURVEY METHODS:

All work was done using the launches MARINDIN and MITCHELL as guide and end launches respectively and launch EDNA M. as a tender. Dual control was used entirely. The complement on the guide launch was two officers; an engineer; a coxswain and two seamen; on the end launch two officers; an engineer; a coxswain and one seaman. All soundings taken by the tender were with a sounding wire, to which no correction was necessary. In setting the drag to obtain a certain effective depth, allowance was usually made for sea and a possible lift of one or two feet.

WEATHER CONDITIONS:

During the progress of the work on this sheet, the trade winds were blowing almost continually and there was usually a swell or chop of one to two feet, which is noted in the records. Due to this fact difficulty was experienced at times in obtaining the effective depth required; especially when dragging close to bottom, when the drag could not be set deep enough to allow for sea and lift.

On some days there was strong northwesterly current which made dragging difficult, especially in the vicinity of Hermanos Passage, Outer Piraguas Rock and the Chinchorro Shoals.

GENERAL REMARKS:

The following remarks in regard to each paragraph of the instructions for sheet #4291 may help in verifying the sheet.

Paragraph 1--The area as laid out on the A. and D. sheet was covered at 30 feet as desired. But near the western limits of this area a 27.5 foot sounding was obtained. The position of the depth is given under List of Soundings. A drag strip of 31 feet of the original survey is plotted as covering this shoal. However it will be noted that in the original work the 31 foot drag strip lies between two end strips of 23 feet each, which fact would cause an uncertainty in lift. 31 ft. 5 ft. Depth revised to 30 ft. That part of strip on original survey clearing 27 ft. sounding rejected because drag was lifted over groundings.

018° 20.95'
765° 26.6'
27' 5d9 cleared
60 ft. Depth of
24 ft. 27
22.4 ft.

Paragraph 2:

Area to be redragged to 44 feet is now almost all covered at 43 feet effective depth. The western end of this area, where a 43 foot sounding was obtained, is all covered at 40 feet effective depth, except for a very small split which was covered at 39 feet effective depth. The position of the above 43 foot depth is given under List of Soundings.

$\phi 18^{\circ}-17.48'$
 $\lambda 65^{\circ}-30.3'$

Paragraph 3:

Area to be redragged to a depth of 30 feet is now covered at effective depths of 30 to 32 feet.

Vicinity
 $\phi 18^{\circ}-13.2'$
 $\lambda 65^{\circ}-29.2'$

Paragraph 4:

The 52 foot spot mentioned under this paragraph is now covered at an effective depth of 43 feet.

$\phi 18^{\circ}-14.36'$
 $\lambda 65^{\circ}-30.32'$

After an unsuccessful attempt was made, to drag between North and South Chinchorro Shoals at 42 feet effective depth, two lines of sounding were run across the channel. It was found that the widest 42 foot channel through here would be less than 100 meters. A drag of 20 feet effective depth was carried through here..

Vicinity
 $\phi 18^{\circ}-14.8'$
 $\lambda 65^{\circ}-30.8'$

But due to the difficulty of dragging in this vicinity because of the wind, sea and currents, it was considered inadvisable to incur more expense or delay in making further attempts to increase the effective depth of this channel.

Paragraph 5:

The sixteen foot shoal is now covered at 14 feet effective depth.

$\phi 18^{\circ}-10.97'$
 $\lambda 65^{\circ}-28.2'$

Paragraph 6:

This area is now all covered at 60 to 61 feet effective depth, except for a small area in which 58 foot soundings were obtained. The area in which these 58 foot soundings were found was covered at 51 feet effective depth.

$\phi 18^{\circ}-18.1'$
 $\lambda 65^{\circ}-29.3'$

Paragraph 7:

Area covered as required, to an effective depth of 61 feet.

Vicinity
 $\phi 18^{\circ}-16.8'$
 $\lambda 65^{\circ}-27.4'$

Paragraph 8:

Area to be redragged to an effective depth of 60 feet is covered at an effective depth of 59 feet.

Vicinity
 $\phi 18^{\circ}-15.5'$
 $\lambda 65^{\circ}-25.7'$

Paragraph 9:

The 23 foot shoals in question was verified, but it's position was found to be about 80 meters west of the charted position. The charted position of the shoal is in error, because a drag of 27 feet effective depth was carried from the eastward over the charted position

$\phi 18^{\circ}-16.45'$
 $\lambda 65^{\circ}-13.75'$

Paragraph 9 (con't):

of the 23 foot spot and up against the shoal as determined by this survey. The position of this 23 foot shoal as given in this report was verified by grounding on it both from the eastward and from the westward; and three different positions were obtained on this shoal.

The splits and insufficient overlaps indicated on the blue print are now covered.

CURRENTS:

It was noted while dragging the detached areas on this sheet, that only the northerly or northwesterly current was appreciable. In the vicinity of Hermanos Passage the northerly current was at times quite strong. Between Hermanos Passage and Outer Piraguas Rock, and in the vicinity of the Chinchorro Shoals a strong northwesterly current was noted. The southerly or southeasterly currents were never noticeably strong, while doing this work. The prevailing northwesterly or northerly currents noted were probably due largely to the trade winds.

COAST PILOT NOTES:

No additional data, aside from the currents mentioned above, were obtained for the Coast Pilot.

Respectfully submitted.

*Forwarded
J. C. Methuen
Chg. S. S. Range.*

Henry E. Finnegan
Henry E. Finnegan,
Jr. H. & C. Engineer.

LIST OF SOUNDINGS.

A depth of 23 feet was found 1.9 miles 130° true from Viento Point in Lat. $18^{\circ} 16'$ ~~858~~¹ meters, Long. $65^{\circ} 13'$ - 1304 meters. On the same shoal (about 40 meters area) another depth of 23 feet was found 22 meters 235° true from the above sounding. The 23 foot charted sounding ^{23 ft. charted from H-283 located in error 342 Review} 180 meters too far east.

A depth of ~~26.5~~²⁶ feet was found 2.86 miles 138° true from Viento Point in Lat. $18^{\circ} 16'$ - 356 meters, Long. $65^{\circ} 13'$ ~~1518~~¹ meters. Black Can Buoy #1 lies 66 meters 43° true from the above 26.5 foot sounding. A depth of 58 feet was obtained at the position of the buoy.

A depth of ~~23.5~~²³ feet was found 3.8 miles 138° true from Viento Point in Lat. $18^{\circ} 14'$ - 1608 meters, Long $65^{\circ} 12'$ - 1115 meters.

A depth of 67 feet was found 4.2 miles 141° true from Viento Point in Lat. $18^{\circ} 14'$ - 818 meters, Long. $65^{\circ} 12'$ - 886 meters. This position also marks the location of Grampus Shoals Red Nun Buoy #2.

A drag was grounded up against the shoal coral point extending north of Caballo Blanco and several depths of 13 feet and 14 feet were obtained. A depth of 13 feet marks the north limit of the shoal point and is 672 meters 355° true from the north end of Caballo Blanco, in Lat. $18^{\circ} 10'$ - 1470 meters, Long. $65^{\circ} 28'$ - 126 meters.

^{or 30 ft. plotted}
A depth of ~~31.5~~³¹ feet was found 2.75 miles 330° true from the north end of Caballo Blanco in Lat. $18^{\circ} 12'$ - 1618 meters, Long. $65^{\circ} 29'$ - 917 meters. This sounding checks the surrounding depths as charted.

^{grounding of 31 ft. plotted}
A depth of 32 feet was found 3.3 miles 329° true from the north end of Caballo Blanco in Lat. $18^{\circ} 13'$ - 565 meters, Long. $65^{\circ} 29'$ - 1481 meters.

Two lines of soundings were run across the channel between North and South Chinchorro Shoals. These lines with soundings are plotted on the wire drag smooth sheet.

^{grounding of 43 ft. plotted}
A depth of 45 feet was found 0.65 miles 23° true from Outer Piraguas Rock, in Lat. $18^{\circ} 17'$ - 155 meters, Long. $65^{\circ} 30'$ - ~~528~~⁵²⁸ meters. This grounding was at "N", whose upright was set at 46 feet. The effective depth as reduced and plotted on this sheet is 43 feet.

A depth of 43 feet was found 1.04 miles 17° true from Outer Piraguas Rock in Lat. $18^{\circ} 17'$ - 867 meters, Long. $65^{\circ} 30'$ - ~~562~~⁵⁶² meters.

⁵⁷
A depth of ~~56~~⁵⁷ feet was found 1.97 miles 36° true from Outer Piraguas Rock in Lat. $18^{\circ} 18'$ - 177 meters, Long. $65^{\circ} 29'$ - ~~558~~⁵⁵⁸ meters. A depth of 61 feet was found 100 meters 67° true from the above 58 foot sounding. Another depth of ~~56~~⁵⁷ feet was found 110 meters 43° true from the above ~~56~~⁵⁷ foot sounding.

LIST OF SOUNDINGS

grounding of 61 ft plotted

A depth of 62 feet was found 1.98 miles 43° true from Outer Piraguas Rock in Lat. $18^{\circ} 17'$ - 175° meters, Long. $65^{\circ} 29'$ - 234° meters.

A depth of 54 feet was found 3.0 miles 353° true from Outer Piraguas Rock in Lat. $18^{\circ} 19'$ - 854° meters, Long. $65^{\circ} 30'$ - 162° meters. This sounding is in a charted shoal area of seven to eight fathoms. The drag grounded here while trying to get in position to drag a line north of Piraguas Rock.

A depth of 27.5 feet was found 0.73 miles 106° true from the easternmost rock of Hermanos Reef, in Lat. $18^{\circ} 20'$ - 165° meters, Long. $65^{\circ} 28'$ - 1150° meters.

1096

grounding of 30 ft. plotted

A depth of 33.5 feet was found 0.9 miles 92° true from the easternmost rock of Hermanos Reef, in Lat. $18^{\circ} 21'$ - 113° meters, Long. $65^{\circ} 28'$ - 744° meters.

A depth of 27.5 feet was found 1.24 miles 95° true from the easternmost rock of Hermanos Reef, in Lat. $18^{\circ} 20'$ - 178° meters, Long. $65^{\circ} 28'$ - 145° meters. This sounding checks the charted $27\frac{3}{4}$ foot sounding.

grounding of 30 ft plotted

A depth of 31 feet was found 0.65 miles 87° true from the easternmost rock of Hermanos Reef in Lat. $18^{\circ} 21'$ - 251° meters, Long. $65^{\circ} 28'$ - 1194° meters. -

STATISTICS
W.D. Sheet #4291

Date	Letter	Vol.	Drag length	Positions	Miles Stat.	Sdgs.
Mar. 3, '26	A	1	1800	13	1.9	3
Apr. 4, '26	B	1	4200	28	7.7	-
Apr. 12, '26	C	1	5400	5	1.3	-
Apr. 16, '26	D	1	6300	14	3.2	3
Apr. 19, '26	E	1	6300	13	2.3	2
Apr. 23, '26	F	1	4200 4800	14	4.2	-
May 3, '26	G	1	3500	14	1.5	2
May 4, '26	H	1	2800	8	0.6	2
May 5, '26	J	1	2100	12	0.75	1
May 6, '26	K	1	3500 3000	10	1.0	2
May 7, '26	L	1	3500	29	6.0	2
May 17, '26	M	1	1500 5400	12	0.7	14
May 21, '26	N	1	2800	8	1.3	-
June 15 '26	P	1	3200	6	0.4	4
June 16 '26	Q	1-2	3200 5400	10 10	1.0 1.3	4
June 22 '26	R	2	4200 2800 2000	26	4.0	2
June 23 '26	S	2	1800 3500	39	5.8	1
June 24 '26	T	2	4200 3000	29	4.5	1
July 15 '26	U	2	2400	6	1.0	-
Total				306	50.45	43

STATISTICS

New area	1.5 square statute miles
Total area	4.15 square statute miles.

For the work south of Culebra a tide staff at Culebrita was used.

For the work near west end of sheet a tide gauge at Fajardo was used.

Culebrita Tide Staff

Plane of reference	M.T.L. -0.5 ft. = 1.3 ft. on staff.
Lowest tide observed	= 1.1 ft. on staff.
Highest tide observed	= 3.5 ft. on staff.

Fajardo tide gauge

Plane of reference	M.T.L. -0.5 ft. = 2.3 ft. on staff.
Lowest tide observed	= 1.8 ft. on staff.
Highest tide observed	= 4.6 ft. on staff.

ADDITIONAL SIGNALS ON SHEET #4291

Name	Type	Lat.	Meters.	Long.	Meters	Remarks
Navy	Tri	18 17	1741.5	65 19	1550.7	Recoverable. Navy Beacon on Luis Pena Cay.
Ade	Hyd.	18 17	1691	65 14	1760	W.W. on Agua Cay Culebra
Ho	Hyd.	18 20		65 20		Transferred from W.D. Sheet #4290

Copy for Records Section.

February 10, 1928.

Division of Hydrography and Topography:

Division of Charts:

Tide reducers are approved in
volumes of sounding records for

HYDROGRAPHIC SHEET 4291 add'l.

Locality: VIRQUES SOUND, PORTO RICO.

Chief of Party: G. O. Mattison, 1926.

Plane of reference is
ft. on tide staff at M L W
2.5 Fajardo.

Condition of records satisfactory except as checked below:

1. Locality and sublocality of survey omitted.
2. Month and day of month omitted.
3. Time meridian not given at beginning of day's work.
4. Time (whether A.M. or P.M.) not given at beginning of day's work.
5. Soundings (whether in feet or fathoms) not clearly shown in record.
6. Leadline correction entered in wrong column.
7. Field reductions entered in "Office" column.
8. Location of tide gauge not given at beginning of each day's work.
9. Leadline corrections not clearly stated.
10. Kind of sounding tube used not stated.
11. Sounding tube No. entered in column of "Soundings" instead of "Remarks".
12. Legibility of record could be improved.
13. Remarks.

G. H. Hulse

Chief, Division of Tides and Currents.

DIVISION OF CHARTS

REVIEW SECTION - NAUTICAL CHART BRANCH

REVIEW OF HYDROGRAPHIC SURVEY

REGISTRY NO. H-4291 W.D.
Ad. Wk. (1926)

FIELD NO. -----

Porto Rico, Vieques Sound, Arenas Pt., to Grampus Shoals
Surveyed in March - July, 1926 Scale 1:40,000
Instructions dated May 28, 1925

Soundings:

Control:

Handlead

Sextant angles on shore signals

Chief of Party - G. C. Mattison

Surveyed by - H. E. Finnegan, C. F. Ehlers, A. C. Thorsen and
W. R. Porter

Protracted by - H. E. Finnegan

Soundings plotted by - H. E. Finnegan

Verified and inked by - I. Zeskind and R. H. Carstens

Reviewed by - R. H. Carstens, April 16, 1948

Inspected by - R. H. Carstens

1. In recompiling charts of this area it was noted that the verification and review of the Additional Work 1926 had not been accomplished. An informal review is, therefore, being made at this date.
2. The geographic positions of the new signals used on the additional work are given in the Descriptive Report.
3. The charted depths are in harmony with the present effective drag depths except that the 23 ft. charted in lat. $18^{\circ} 16.46'$, long. $65^{\circ} 13.70'$, (chart 914) from H-4293 (1922-23) W.D. is disproved by present effective depths of 27 ft. The position of the 23-ft. sounding as plotted on H-4293 W.D. does not agree with the check angle recorded for the position and is probably in error. The present 23-ft. sounding, which falls 100 meters west of the prior location of the shoal is adequate for charting.

4291

WIRE DRAG

4291
WIRE DRAG

Form 504
U. S. COAST AND GEODETIC SURVEY DEPARTMENT OF COMMERCE
DESCRIPTIVE REPORT
Type of Survey <u>Wire Drag</u>
Field No. <u>7</u> Office No. <u>H-4291 H.D.</u>
LOCALITY
State <u>Porto Rico</u>
General locality <u>Vieques Sound</u>
Locality <u>Outer Piraguas Rock and Arenas</u>
<u>Point to Grampus Shoals</u>
<u>194 22-23</u>
CHIEF OF PARTY
<u>F.B.T. Siems</u>
LIBRARY & ARCHIVES
DATE

DEPARTMENT OF COMMERCE
U. S. Coast and Geodetic Survey.

HYDROGRAPHIC TITLE SHEET

Register No. 4291
Field No. 3 (7) ----- W I R E D R A G.

State: PORTO RICO.

General Locality: Vieques Sound
~~EAST COAST PORTO RICO.~~

Locality: Outer Piraguas Rock + Arenas Point
~~VIEQUES SOUND.~~ Back to Grampus Shoals

Chief of Party: F. B. T. SIEMS.

Surveyed by: R. R. MOORE.

Date of Survey: 1922-1923.

Scale: 1:40,000.

Soundings in FEET

Plane of Reference: MEAN LOW WATER.

Protracted by A. P. RATTI. Soundings in pencil by A. P. Ratti.

Records accompanying sheet (check those forwarded):

Des. Report, ----- Tide Records, ----- Mariagrams, --2-- Boat Sheets,
--1-- Sounding Books, --5-- Wire Drag Books, 1 Effective Drag Tracing.

Data from other sources affecting sheet:

Triangulation, Porto Rico, 1921-1923. Fajardo and Culebrita Tides.

ADDRESS THE DIRECTOR
U. S. COAST AND GEODETIC SURVEY

AND REFER TO No. 4-DRM

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

WASHINGTON January 21, 1925.

SECTION OF FIELD RECORDS

Sheet No. 4291.

Surveyed in 1922 - 1923.

Chief of Party, F. B. T. Siems.

Surveyed by R.R. Moore.

Protracted by A. P. Ratti.

Soundings plotted by A. P. Ratti, R. L. Johnston.

Verified and A. & D. Sheet, H. E. MacEwen.

1. The records conform to the requirements of the general instructions. More detailed notes should have been made regarding the handling of the drag at groundings.
2. The plan and character of the development fulfill the requirements of the general instructions.
3. The field plotting was completed to the extent prescribed in the general instructions but was apparently very carelessly done.
4. The office cartographer had to do over much of the drafting done in the field. The plotting of positions on this sheet was excellently done but the field draftsman in plotting the areas, effective depths, hook-ups, tide changes, etc., apparently used little care as is evidenced by the great number of errors found by the office cartographer in making final verification. Following are the principal defects:

15 J (end launch) plotted erroneously; wrong object.

Positions numbered incorrectly on M day. Necessary to replot days work to determine correct location of guide launch and end launch positions. Hookup at 20 M plotted erroneously.

N day. Changes in plotting necessary due to failure of field party to apply 1/40th rule.

Q day. Tide change applied at wrong end of line, 24 Q instead of 9 Q.

R day. Positions on smooth sheet all numbered erroneously by field draftsman. Tide change was not plotted. Hookup was not timed in records nor plotted on smooth sheet. Lift was applied

ADDRESS THE DIRECTOR
U. S. COAST AND GEODETIC SURVEY

AND REFER TO No. 4-DRM

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

WASHINGTON January 21, 1925.

SECTION OF FIELD RECORDS

Sheet No. 4291.

Surveyed in 1922 - 1923.

Chief of Party, F. B. T. Siema.

Surveyed by R.R. Moore.

Protracted by A. P. Ratti.

Soundings plotted by A. P. Ratti, R. L. Johnston.

Verified and A. & D. Sheet, H. E. MacEwen.

1. The records conform to the requirements of the general instructions. More detailed notes should have been made regarding the handling of the drag at groundings.
2. The plan and character of the development fulfill the requirements of the general instructions.
3. The field plotting was completed to the extent prescribed in the general instructions but was apparently very carelessly done.
4. The office cartographer had to do over much of the drafting done in the field. The plotting of positions on this sheet was excellently done but the field draftsman in plotting the areas, effective depths, hook-ups, tide changes, etc., apparently used little care as is evidenced by the great number of errors found by the office cartographer in making final verification. Following are the principal defects:

15 J (end launch) plotted erroneously; wrong object.

Positions numbered incorrectly on M day. Necessary to replot days work to determine correct location of guide launch and end launch positions. Hookup at 20 M plotted erroneously.

N day. Changes in plotting necessary due to failure of field party to apply 1/40th rule.

Q day. Tide change applied at wrong end of line, 24 Q instead of 9 Q.

R day. Positions on smooth sheet all numbered erroneously by field draftsman. Tide change was not plotted. Hookup was not timed in records nor plotted on smooth sheet. Lift was applied

to whole day when it should have been applied only to first section.

S day. Positions on end launch line all numbered erroneously. 23 S aground, no sounding.

W day. Positions on guide launch line numbered erroneously.

X day. Positions at 12 X end of line and 13 X beginning plotted erroneously. Necessary to change effective depth areas.

19 X. Drag aground at buoy No. 5. No sounding.

C' day plotted erroneously. Necessary to replot all hookups.

F' day. Numbering of positions on guide launch line and end launch line transposed.

J' day. Change necessary, 1J' to 7 J' inclusive; rule of 1/40th ignored. Hookup at 10 J' plotted erroneously.

K' day. Minor changes. 1/40th rule ignored.

L' day. Many changes necessary in plotting of tide changes, hookups, paths of buoys, etc. 1/40th rule ignored, positions on end launch line between 10 L' and 25 L' mixed up.

M' day. All hookups plotted erroneously. 1/40th rule ignored. 14 M' drag aground. No sounding.

N' day. Hookups poorly plotted.

10 P'. Hookup replotted on account of erroneous plotting.

Q' day. All hookups poorly plotted necessitating reconstruction of line. 1/40th rule ignored.

19 Q'. drag lifted over Grampus Shoal nun buoy but no split shown in field plotting. No notes to prove ground covered. Changed by office cartographer to show as split.

R' day. End launch line positions numbered erroneously.

18 S'. Hookup plotted erroneously necessitating change.

T' day. Hookup shown as affecting whole day when only two positions at end of line are affected.

W' day. 1/40th rule ignored, necessitating change in plotting.

5. The junctions with adjacent sheets are satisfactory.
6. Two splits were found not shown by the field plotting. One at 36 G where the drag grounded with an effective depth of sixty-two feet (62'). No least sounding was obtained at this ground. The other at Grampus Shoal, Q' day. At position 28 Q' the dragging was halted to allow the tender to lift ground wire over Grampus Shoal Buoy C 1. No split was shown by field party. Since there was no proof in the records that this area was completely covered it is assumed that the line was broken at the point where the drag was lifted, making a split.

The second split occurs where this sheet joins sheet W. D. 4289 at Mosquito Reef. At this point on sheet 4289 a note appears in the records stating that the area surrounding Mosquito Reef Buoy was covered on this sheet (W. D. 4291) but a careful verification does not show this area covered. Further surveying is necessary to fully develop this area.

7. Rating of work:
 - a. Character and scope of surveying - Excellent.
 - b. Field drafting - Fair.

Respectfully submitted,

H. E. MacEwen

H. E. MacEwen.

E.P.E.

ADDRESS THE DIRECTOR
U. S. COAST AND GEODETIC SURVEY

AND REFER TO No. 4-DRM

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

WASHINGTON

January 20, 1925.

SECTION OF FIELD RECORDS

Report on Wire Drag Sheet No. 4291

Surveyed in 1922, 1923

Instructions dated July 7, 1921.

Chief of Party, F. B. T. Siems.

Surveyed by R. R. Moore.

Protracted and inked by A. P. Ratti.

Verified and Area and Depth Sheet by H. E. MacEwen.

1. The records conform to the requirements of the General Instructions except that there should have been more notes explaining the handling of the drag at groundings and at buoys.
2. The methods and character of operations fulfill the requirements of the General Instructions.
3. The depth and extent of dragging satisfy the specific instructions except as follows:

a. In Hermanos Passage the deeper drag should have extended closer to the 4 3/4 fathom spot. *Accomplished Ad Wk 1926*

b. The deep area just west of the northern end of Hodgkins Shoal should have been dragged deeper than 38 ft. in order to connect with the areas to the north and south that have been dragged to greater effective depths. *Accomplished Ad W 1926*

c. The drag should have been carried through the channel between North Chinchorro Shoal and South Chinchorro Shoal to connect with H. 4292. *Accomplished Ad Wk 1926*

d. The area west of Mosquito Reef Buoy N-2 which was dragged to 21 ft. should have been dragged closer to the bottom. *no*

e. Southeast of South Chinchorro Shoal the drag should have been set deeper than 26 and 27 ft. *Accomplished Ad Wk 1926*

4. The least water was found on all shoals discovered and on all charted shoals except as follows:

- a. On the 52 ft. sounding in latitude $18^{\circ} 14' 1/2''$, longitude $65^{\circ} 30' 1/2''$, where a 61 ft. drag grounded. There is deeper water inside and the spot lies near the entrance to the channel between North and South Chinchorro Shoals. *52 ft. sounding cleared by Eff. Depth of 43 ft. on Ad Wk 1926*
- b. The 16 ft. sounding in latitude $18^{\circ} 11'$, longitude $65^{\circ} 28' 16''$ should be dragged over to determine the least water. This spot lies about 550 meters off the northern end of Caballo Blanco Reef with deep water all around. *16 ft. sdg cleared by Eff. Depth of 14 ft. on Ad Wk 1926*
- c. The 62 ft. sounding (grounding depth) in latitude $18^{\circ} 12' 1/2''$ longitude $65^{\circ} 26' 1/2''$, has not been cleared. A split in the work was left around this spot. *Covered on H-4289 W.D.*
- d. The 38 ft. sounding in latitude $18^{\circ} 13'$, longitude $65^{\circ} 27' 1/2''$ was cleared by a 35 ft. drag. The sounding represents the shoalest known depth on a rather extensive shoal. If work is done in this vicinity it might be well to drag this spot closer to the bottom to determine the least water. *out*
- e. The 34 ft. sounding in latitude $18^{\circ} 12'$, longitude $65^{\circ} 28' 1/4''$ was cleared by a 31 ft. drag. ✓
- f. Hodgkins Shoal in latitude $18^{\circ} 16'$, longitude $65^{\circ} 28' 1/2''$ with a charted depth of $4 \frac{3}{4}$ fathoms (28 ft.) was cleared by a 25 ft. drag. ✓
- g. The 7 fathom charted shoal (47 ft.) in latitude $18^{\circ} 13' 1/2''$, longitude $65^{\circ} 23' 1/4''$ was cleared by a 39 ft. drag. *only*

5. The overlaps within the sheet are sufficient. The limits of the adjoining sheets are indicated in black on the Area and Depth Sheet. The junctions are generally sufficient except as follows:

- a. South of Chinchorro Shoal the junction with H. 4292 is inadequate. *These three items accom- plished on Ad Wk 1926*
- b. In the channel between North Chinchorro Shoal and South Chinchorro Shoal a junction with H. 4292 was not effected.
- c. Off the north coast of Vieques Island in latitude $18^{\circ} 10'$, longitude $65^{\circ} 19' 1/2''$, the junction with H. 4293 is insufficient.

6. Further dragging is required as noted above and also to cover splits and insufficient overlaps. In connection with the question of further dragging, attention is called to the following:

a. At 8 E the drag grounded at 54 ft. in latitude $18^{\circ} 17'$, longitude $65^{\circ} 27 \frac{1}{2}'$, and slipped off. This spot had ^{this spot was cleared by} been cleared by a 61 ft. drag on a previous day (C day) ^{an Eff. Depth of 61 ft. on} and by a 59 ft. drag on a subsequent day (B' day). This ^{Ad. Wk. 1926} inconsistency was explained by Mr. Moore, who was in immediate charge of the drag operations, that on E day there was a heavy sea running and the drag grounded while in the trough of the sea. If this theory is accepted then it must also be assumed that during that same day the effective depth of the drag was in many places much less than indicated, for just as it was lowered in a trough of a wave it was raised on a crest of a wave. ✓

b. At 9 E in latitude $18^{\circ} 17'$, longitude $65^{\circ} 28'$, the drag grounded at the F buoy set at 54 ft. but slipped off. This area was later covered by a 59 ft. drag but by a very small overlap. On a previous day this same spot was covered by a 61 ft. drag but inasmuch as a grounding occurred on this day ^{this spot was cleared by an Eff. Depth of 61 ft. on} which is not very far from the grounding in question, it ^{Ad. Wk. 1926} would be well to redrag this area in order to eliminate all doubt.

It is also recommended that, in view of the verbal statement of Mr. Moore when in the office relative to the state of the sea on E day, that portion of the work on that day that has not been covered by any other day's work should be redragged. ✓

c. At 33 J in latitude $18^{\circ} 15 \frac{1}{2}'$, longitude $65^{\circ} 26'$, the drag grounded at 63 ft. but no mention was made at what ^{this area cleared by} part of the drag. Another drag strip from the opposite ^{an Eff. Depth of 59 ft. on} direction ends close to the bight of the drag at 33J making ^{Ad. Wk. 1926} a doubtful area. It is therefore recommended that this area be redragged. ~~Until such time 63 ft. will be charted.~~ (See ^{A.L.S.} A. & D. sheet).

d. Around Grampus Shoals Buoy N-2 (latitude $18^{\circ} 14 \frac{1}{2}'$, longitude $65^{\circ} 12 \frac{1}{2}'$) and around Grampus Shoals Buoy C-1 (latitude $18^{\circ} 16'$, longitude $65^{\circ} 14'$) the drag should be run ^{Accomplished on Ad. Wk. 1926} closer to these buoys. The large splits indicated on the A. & D. sheet ^{small area not covered} around these buoys are due to the uncertainty of the man- ^{remains at buoy} euering and the absence in the records of any illuminating notes ^{C-1} as to the time of lifting the drag over and the dropping it down.

e. The 23 ft. sounding from H. 4293 in latitude $18^{\circ} 16 \frac{1}{2}'$, longitude $65^{\circ} 13 \frac{3}{4}'$ should be investigated as it plots on 4291 as having been covered by a 28 ft. drag although very close to a depth change. It is quite probable that the depth change took place a little before the time it was recorded, which would bring the 23 ft. sounding within a 21 ft. area. The depth change was so shown on the smooth sheet in order to avoid confusion. It should, however, be investigated and verified.

23 ft. verified on Ad. Wk. 1926

7. Attention is called to the fact that Grampus Shoals Buoys N-2 and C-1 as located by the field party differ from the charted positions.

N-2 was located 340 meters 313° (true) from its present charted position.

C-1 was located 290 meters 167° (true) from its present charted position.

Authority for above: Page 23, Vol. 3 of H. 4291.

8. The field plotting was completed to the extent prescribed in the General Instructions.
9. The office cartographer had to do over much of the work as turned in by the field party. A portion of the changes were due to the application of the 1/40th rule and to changed tide reducers. But a large portion of the changes were due to sheer carelessness of the plotter. (See verification report of H. E. MacEwen.)

- (Character and scope of operations - Good.
10. Rating of the work{
[Field Drafting - Fair.

11. Reviewed by A. L. Shalowitz, January, 1925.

Oct. 16, 1923.

Division of Hydrography and Topography:

Division of Charts:

Tide reducers are approved in
1 volume of sounding records ~~for~~ and
5 " " wire drag " for
HYDROGRAPHIC SHEET 4291

Locality: East Coast of Porto Rico

Chief of Party: F. B. T. Siems, in 1922-3
Plane of reference is mean low water, reading
1.7 ft. on tide staff at Culebrita Id. Lt. Ho.
5.0 " " auto. gauge at Fajardo

For reduction of soundings, condition of records satisfactory
except as checked below:

1. Locality and sublocality of survey omitted.
2. Month and day of month omitted.
3. Time meridian not given at beginning of day's work.
4. Time (whether A.M. or P.M.) not given at beginning of day's work.
5. Soundings (whether in feet or fathoms) not clearly shown in record.
6. Leadline correction entered in wrong column.
7. Field reductions entered in "Office" column.
8. Location of tide gauge not given at beginning of each day's work.
9. Leadline corrections not clearly stated.
10. Kind of sounding tube used not stated.
11. Sounding tube No. entered in column of "Soundings" instead of "Remarks".
12. Legibility of record could be improved.
13. Remarks.



Chief, Division of Tides and Currents.

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SURVEY NO. H-4291

Record of Application to Charts

[illegible]

M-2758-I

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.